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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/735,710 | 12/12/2000 | Frank H. Levinson | 9775-0040-999 | 5579 |

22913 7590 10/30/2006

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EXAMINER

WANG, QUAN ZHEN

ART UNIT PAPER NUMBER

2613

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/735,710

Applicant(s)

LEVINSON ET AL.

Examiner

Quan-Zhen Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 21,22 and 34-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,10,13-15,19,20,23,24,26 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 2-9,11,12,16-18,25,27,28,32 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 10, 13, 15, 19-20, 23-24, 26, 29, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (APA) in view of Farhan et al. (U.S. Patent US 6,373,611 B1).

Regarding claims 1 and 23, the APA discloses a return path transmitter (fig. 2) for use in conjunction with a local system that generates an analog RF data signal to be conveyed to a head end system, the return path transmitter comprising: a sample clock generator (fig. 2, the oscillator generating the sample clock in clock generator 156) having a first clock oscillator (fig. 2, 100 MHz clock signal) for generating a sample clock; an RF signal receiver (fig. 2, RF-receiver RF), coupled to the sample clock generator, for receiving and converting the analog RF data signal into a first data stream of digitized RF data samples at a rate determined by the sample clock; an output clock generator (fig. 2, the synthesizer generating the symbol clock in clock generator 156) having a second clock oscillator (fig. 2, 125 MHz clock signal) for generating an output clock; and an optical transmitter (fig. 2, optical transmitter 158 and 159) for converting the serialized RF data stream into a serialized optical data signal for transmission over

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an optical fiber. The APA differs from the claimed invention in that APA does not specifically that the system further comprising supplemental channel circuitry for providing a second data stream; a multiplexer coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream. However, it is well known in the art to have a supplemental circuitry for providing a second data stream and use a multiplexer coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream. For example, Farhan discloses a transmitter system (fig. 2) comprising a supplemental circuitry (fig. 2, digital pilot tone generator 210) for providing a second data stream (fig. 2, data stream generated by 210) and a multiplexer (fig. 2, multiplexer 215) to output a combined data stream (fig. 2, output data stream to P/S 220). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a supplemental circuitry for providing a second data stream and use a multiplexer coupled to the RF signal receiver and the supplemental channel circuitry to receive the first data stream and second data stream and to output a combined data stream, as it is taught by Farhan, in the system of the APA in order to provide a digital pilot tone in the form of a number of bits representative of a particular level and frequency.

Regarding claims 10 and 24, Bigam further teaches to transmit maintenance data (control data) (column 7, lines 23-27).

Regarding claim 13, the modified system of APA and Farhan differs from the claimed invention in that the APA and Farhan do not specifically teach that the supplemental channel circuitry includes an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data and circuitry for including the sampled RF data in the second data stream. However, the APA discloses to an RF data sampler for sampling data from the first data stream to generate a set of sampled RF data (fig. 2, ADC with sample clock signal). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to replace the supplemental signal of Farhan by the generated sampling data from the first data stream in order to have redundant input data of the first data stream.

Regarding claims 15 and 31, the APA discloses a return path transmitter (fig. 2) for use in conjunction with a local system that generates an analog RF data signal to be conveyed to a head end system, the return path transmitter comprising: a sample clock generator having a first clock oscillator (fig. 2, the oscillator generating the sample clock in clock generator 156) for generating a sample clock; first RF signal receiver (fig. 2, RF-receiver RF), coupled to the sample clock generator, for receiving and converting the first analog RF data signal into a first data stream of digitized RF data samples at a rate determined by the sample clock; an output clock generator having a second clock oscillator (fig. 2, the synthesizer generating the symbol clock in clock generator 156) for generating an output clock (fig. 2, 125 MHz clock signal) and an optical transmitter (fig. 2, optical transmitter 158 and 159) for converting the serialized RF data stream into a serialized optical data signal for transmission over an optical fiber. The APA differs from

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the claimed invention in that APA does not specifically that the system further comprising a second RF signal receiver the a second analog RF data signal into a second data stream of digitized RF data samples at a rate determined by the sample clock, a supplemental channel circuitry for providing a second data stream; a multiplexer coupled to the RF signal receivers and the supplemental channel circuitry to receive the first, second, and third data streams and to output a combined data stream. However, it is well known in the art to have multiple RF signal receivers for generating multiple data streams, and a supplemental circuitry for providing a data stream and use a multiplexer coupled to the RF signal receivers and the supplemental channel circuitry to receive the multiple data streams and to output a combined data stream. For example, Farhan discloses a transmitter system (fig. 5) comprising multiple RF signal receivers (column 1, line 25-32) to generate multiple analog data streams (fig. 5, data input from 502 and 503) to further generate multiple digital data streams (fig. 5, data output from 205 and 505), and a supplemental circuitry (fig. 5, digital pilot tone generator 210) for providing a third data stream (fig. 5, data stream generated by 210) and a multiplexer (fig. 5, multiplexer 550) coupled to the RF signal receivers and the supplemental channel circuitry to receive the first, second, and third data streams and to output a combined data stream (fig. 5, output data stream from multiplexer 550). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate multiple RF receivers to generate multiple data streams; a supplemental circuitry for providing a third data stream and use a multiplexer coupled to the RF signal receivers and the supplemental channel circuitry to

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receive the first, second, and third data streams and to output a combined data stream, as it is taught by Farhan, in the system of the APA in order to process multiple analog input signals and provide digital pilot tone in the form of a number of bits representative of a particular level and frequency.

Regarding claims 19 and 26, APA and Farhan have been discussed above in regard with claim 15. APA and Farhan differs from the claimed invention in that APA and Farhan do not specifically teach that the system further comprising a data port for receiving a data stream from a digital source external to the return path transmitter and the data stream having a data rate of at least 5Mb/s. However, Farhan further teaches that the system can receive more data streams and the system can handle data bandwidth of 5-40 MHz (column 5, lines 27-53). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to configure the modified system of APA and Farhan to further comprising a data port for receiving a data stream from a digital source external to the return path transmitter, and the data stream having a data rate of at least 5Mb/s in order to send information from subscribers to the head-end in a more reliable and less expensive manner.

Regarding claim 29, the modified system of APA and Farhan differs from the claimed invention in that the APA and Farhan do not specifically teach sampling data from the first data stream to generate a set of sampled RF data and circuitry for including the sampled RF data in the second data stream. However, the APA discloses sampling data from the first data stream to generate a set of sampled RF data (fig. 2, ADC with sample clock signal). Therefore, it would have been obvious for one of

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ordinary skill in the art at the time when the invention was made to replace the supplemental signal of Farhan by the generated sampling data from the first data stream in order to have redundant input data of the first data stream.

3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (APA) in view of Farhan et al. (U.S. Patent US 6,373,611 B1) and further in view of Gurley (U.S. Patent US 5,036,315).

Regarding claim 20, APA and Farhan further differs from the claimed invention in that APA and Farhan do not specifically teach that the system receives a digital data from an Ethernet channel. However, an Ethernet channel is well known in the art. For example, Gurley disclose transmit data signal on an Ethernet channel (fig. 2; column 13, lines 38-39). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to configure the modified system of APA and Farhan to receiver digital data from an external Ethernet channel in order to provide services for costumers using Ethernet channels.

4. Claims 14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (APA) in view of Farhan et al. (U.S. Patent US 6,373,611 B1) and further in view of Steiner (U.S. Patent US 4,862,392).

Regarding claims 14 and 30, Farhan further teaches that the supplemental channel circuitry can be configured to generate the second data stream intermittently (pilot tone). The modified system of APA and Farhan differs from the claimed invention

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in that the APA and Farhan do not specifically teach that the optical transmitter includes circuitry for inserting padding words into the combined data stream so as to maintain the combined data stream at a fixed data rate. However, it is well known in the art to insert padding words to keep data stream at a fixed rate (length). For example, Steiner teaches to insert padding words into data packets (column 19, line 67 to column 10, line 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to configure the optical transmitter circuitry for inserting padding words into the combined data stream in order to fill out the data packets to maintain a fixed rate as necessary.

Allowable Subject Matter

5. Claims 2-9, 11-12, 16-18, 25, 27-28, and 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed on October 2, 2006 have been fully considered but they are not persuasive.

Applicant argues that the "sample clock" and "symbol clock" are generated by the same device. However, the APA clearly states "... have used a low noise oscillator at the transmitter for the A/D sample clock. The same oscillator is also used as a

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reference for a synthesizer that generates a coherent symbol clock for the communication link.” It is clear that the sample clock is generated by the “low noise oscillator”, and the symbol clock is generated by the “synthesizer” which uses the oscillator as a reference. Therefore, the “sample clock” and “symbol clock” are generated by two different clock generators.

In response to applicant's argument that there is no suggestion to combine the APA and Farhan, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, regarding claims 1, 10, 13, 14, and 31, Farhan explicitly disclose to “provide a digital pilot tone in the form of a number of bits representative of a particular level and frequency” (column 2, lines 45-48); regarding claims 15, 19, 20, 23, 24, 26, and 29-31, Farhan discloses that one of the purposes of Farhan's invention is to send information from subscribers to the head-end in a more reliable and less expensive manner (column 1, lines 33-38).

Regarding claim 20, Applicant challenges Examiners Official Notice that “an Ethernet channel is well known in the art”, stating that “... Examiner appears to be concerned with the state of the art as that state was believed by the Examiner to exist at the time of examination of the claims. However, the state of the art that is relevant in the examination of the claims is the state that existed at the time of the invention.” As an

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evidence, Gurley (U.S. Patent US 5,036,315) is cited to show that "an Ethernet channel is well known in the art" at the time when the invention was made.

In view of the above reasons, the rejections of claims 1, 10, 13-15, 19, 20, 23, 24, 26, 29 and 30 still stand.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bigham et al. (U.S. Patent US 5,684,799) disclose a video distribution network. Ghaibeh et al. (U.S. Patent US 5,926,478) teach a point-to-multipoint optical network for

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data transmission. Dapper et al. (U.S. Patent US 6,535,715 B2) disclose a hybrid/fiber coax video and telephony communication system with poly-phase filtering.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
10/25/2006


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